

**AMENDMENTS TO THE CLAIMS**

The following is a complete listing of the claims submitted in this application, including the present status thereof and including any amendments made by this paper. Any claims canceled or withdrawn from consideration in this application have been canceled or withdrawn without prejudice or disclaimer of any subject matter therein, applicants specifically reserving the right to pursue any and all claims in continuing or divisional applications. By this paper, claims 135-144, 152-161 and 168-176 have been canceled.

**Listing of Claims.**

1-182(canceled).

183(previously presented). A non-human transgenic vertebrate produced by the steps of:

- (a) administering by injection into a testis of a male non-human vertebrate a lentiviral vector comprising at least one polynucleotide encoding a gene product in operable linkage with a promoter, wherein said testis contains the germ cells of the male non-human vertebrate, and wherein said germ cells are selected from the group consisting of spermatogonial stem cells, type B spermatogonia, primary spermatocytes, preleptotene spermatocytes, leptotene spermatocytes, zygotene spermatocytes, pachytene spermatocytes,

secondary spermatocytes, spermatids, and spermatozoa;  
and

- (b) allowing the lentiviral vector comprising the polynucleotide encoding a gene product to be taken up by, and released into, the germ cells so that the released lentiviral vector comprising the polynucleotide is incorporated into the genome of the germ cells of said male non-human vertebrate.

184(previously presented). The non-human transgenic vertebrate of claim 183, wherein the polynucleotide comprises at least one biologically functional gene.

185(previously presented). A progeny non-human transgenic vertebrate, carrying in its germ cells a lentiviral vector comprising at least one xenogeneic polynucleotide sequence, said non-human vertebrate being obtained by further breeding the male non-human vertebrate of claim 183 with a female of the same species, and selecting the bred progeny non-human transgenic vertebrate for the presence of the lentiviral vector comprising the xenogeneic polynucleotide in its genome.

186(previously presented). The progeny non-human transgenic vertebrate of claim 185, being a male comprising native germ cells carrying in their genomes at least one xenogeneic polynucleotide.

187(previously presented). The non-human transgenic

vertebrate of claim 183, which is selected from the group consisting of mammals and birds.

188 (previously presented). The progeny non-human transgenic vertebrate of claim 185, which is selected from the group consisting of mammals and birds.

189 (previously presented). The non-human transgenic vertebrate of claim 183, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, farm and marine mammals, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

190 (previously presented). The non-human transgenic vertebrate of claim 183, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

191 (previously presented). The non-human transgenic vertebrate of claim 183, wherein the mammal is a farm or marine animal.

192 (previously presented). The non-human transgenic vertebrate of claim 183, wherein the mammal is selected from the group consisting of a bull and a pig, and the bird is a chicken.

193 (previously presented). A transgenic non-human vertebrate, comprising germ cells carrying in their genomes a lentiviral vector comprising at least one xenogeneic polynucleotide, said transgenic non-human vertebrate having

received an injection in its testis of male germ cells comprising a lentiviral vector comprising at least one polynucleotide encoding a desired product and at least one polynucleotide encoding a genetic selection marker, said male germ cells comprising the polynucleotide being isolated or selected from a donor male non-human vertebrate with the aid of the selection marker.

194(previously presented). The transgenic non-human transgenic vertebrate of claim 193 wherein the polynucleotide comprises at least one biologically functional gene.

195(previously presented). A progeny non-human transgenic vertebrate, carrying in its germ cells a lentiviral vector comprising at least one xenogeneic polynucleotide sequence, said non-human vertebrate being obtained by further breeding the male non-human vertebrate of claim 193 with a female of the same species, and selecting the bred progeny non-human transgenic vertebrate for the presence of the lentiviral vector comprising the xenogeneic polynucleotide in its genome.

196(previously presented). The progeny non-human transgenic vertebrate of claim 195, being a male comprising native male germ cells transfected with a xenogeneic polynucleotide.

197(previously presented). The non-human transgenic vertebrate of claim 193, which is selected from the group

consisting of mammals and birds.

198(previously presented). The progeny non-human transgenic vertebrate of claim 195, which is selected from the group consisting of mammals and birds.

199(previously presented). The non-human transgenic vertebrate of claim 193, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

200(previously presented). The non-human transgenic vertebrate of claim 193, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

201(previously presented). The non-human transgenic vertebrate of claim 193, wherein the mammal is a farm or marine animal.

202(previously presented). The vertebrate of claim 193, wherein the mammal is selected from the group of a bull and a pig, and the bird is a chicken.

203(previously presented). A non-human transgenic vertebrate, or its progeny, comprising a native germ cell carrying in its genome a lentiviral vector comprising at least one xenogeneic polynucleotide, said lentiviral vector comprising the polynucleotide having been incorporated into the genome of

said germ cell through the steps of:

- (a) obtaining a male germ cell from a non-human vertebrate;
- (b) transfecting the germ cell in vitro with a lentiviral vector comprising at least one polynucleotide encoding a desired product, and optionally a polynucleotide encoding a genetic selection marker, at about or below the vertebrate's body temperature and for a transfection-effective period of time; and allowing the lentiviral vector comprising the polynucleotide encoding a desired product to be taken up by, and released into the germ cell.

204(previously prevented). The non-human transgenic vertebrate of claim 203, wherein the polynucleotide comprises at least one biologically functional gene.

205(previously prevented). The progeny non-human transgenic vertebrate of claim 203, being a male comprising native male germ cells transfected with a xenogeneic polynucleotide.

206(previously prevented). The non-human transgenic vertebrate of claim 203, which is selected from the group consisting of mammals and birds.

207(previously prevented). The progeny non-human transgenic vertebrate of claim 205, which is selected from the group consisting of mammals and birds.

208(previously prevented). The non-human transgenic vertebrate of claim 203, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

209(previously prevented). The non-human transgenic vertebrate of claim 203, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

210(previously prevented). The non-human transgenic vertebrate of claim 203, wherein the mammal is a farm or marine animal.

211(previously prevented). The vertebrate of claim 203, wherein the mammal is selected from the group consisting of a bull and a pig, and the bird is a chicken.